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# Methods of Communicating Biotechnology with the Public

US-EC Task Force on  
Biotechnology Research



United States of America



Commission of the European Communities

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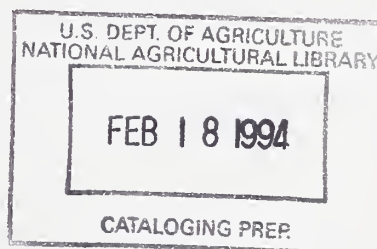
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**FINAL REPORT  
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**UNITED STATES - COMMISSION OF THE EUROPEAN COMMUNITIES  
WORKSHOP**

# **METHODS OF COMMUNICATING BIOTECHNOLOGY WITH THE PUBLIC**

**MARCH 22-25, 1992  
DUBLIN, IRELAND**



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# PREFACE

These proceedings summarize discussions during the United States - Commission of the European Communities (US-EC) Workshop on Methods of Communicating Biotechnology with the Public. The workshop was an activity of the US-EC Task Force on Biotechnology Research, which is a policy-level forum aimed at increasing mutual understanding and exchanging information on the scientific aspects of biotechnology. It is the view of the Task Force that communicating with the public about biotechnology is a critical part of the safe and effective development of this promising new technology. It is hoped that the discussions summarized in this document will serve as an important step in improving the communication process. The views expressed in this document are those of individual participants and do not necessarily reflect the views of the sponsors or governments.





# **US-EC WORKSHOP ON METHODS OF COMMUNICATING BIOTECHNOLOGY WITH THE PUBLIC**

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Barry McSweeney, *BioResearch Ireland*

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# **MEETING REPORT ON THE US - EC WORKSHOP ON METHODS OF COMMUNICATING BIOTECHNOLOGY WITH THE PUBLIC**

## **BACKGROUND**

The United States Government (US) and the Commission of the European Communities (EC) co-sponsored a "US - EC Workshop on Methods of Communicating Biotechnology with the Public," March 22-25, 1992, in Dublin, Ireland. The meeting was hosted by BioResearch Ireland at the request of the US - EC Task Force on Biotechnology Research. The Co-chairs of the meeting were Mark Cantley, Director CUBE Unit, Directorate General (DG) XII, EC; Alvin L. Young, Director, Office of Agricultural Biotechnology, United States Department of Agriculture (USDA); and Barry McSweeney, Director, BioResearch Ireland.

## **ATTENDANCE**

The workshop was attended by 49 invited United States and European experts in communicating biotechnology with the public and related issues, as well as 11 staff and observers. Funding for the workshop was provided by DG XII of the EC and US Government agencies including the National Science Foundation, the Office of Naval Research, the Food and Drug Administration, the Environmental Protection Agency, and the USDA.

## **INTRODUCTORY REMARKS**

Workshop Chairmen Cantley, Young, and McSweeney covered the history of the US - EC Task Force and its charge to the workshop, the importance both the EC and the US attach to the issue of public attitudes about science, and the role of biotechnology in fostering economic development. The introductory speakers also emphasized that the purpose of the workshop was to make practical recommendations to the US - EC Task Force on Biotechnology Research regarding how to improve the dialogue with the public on biotechnology issues.

*The opinions and recommendations expressed in this report are those of the participants of the workshop and do not represent the views of the United States Government, the Commission of the European Communities, or BioResearch Ireland.*



## **PRESENTATION OF CASE STUDIES**

Four case studies were presented at the workshop, including (1) "Lessons Learned from Frost-Ban," by Susanne Huttner, University of California; (2) "Denmark Case Study on Education" by Dorte Hammelev, Educational Biotechnology Group, Denmark; (3) "A Case Study on BST" by Thomas Zinnen, University of Wisconsin; and (4) "Communicating to the Public, Findings from Several Projects of the EC," by Anne Marie Prieels, Belgium.

## **PANEL SESSIONS**

The participants were assigned to five panels: (1) The Role of the Media, (2) The Role of Scientists, (3) The Role of the Public and Public Interest Groups, (4) The Role of Government Institutions, and (5) the Role of Educators. The panels met separately over two days and reported their views to a plenary session of the workshop on the final morning of the meeting. Panelists were selected to represent a diversity of opinion based on their experience and interest in the subject of the workshop. They addressed six basic questions in their break-out sessions:

- a. What determines public perceptions?
- b. What tools do we have to identify and analyze public attitudes towards biotechnology?
- c. What are the key differences in public perceptions between European countries and the United States?
- d. What are the obstacles to effective communication practices (educational, social, cultural, economic, psychological, legal, financial, political), and what are the solutions to overcome such obstacles?
- e. How do we measure and evaluate the effectiveness of communications projects?
- f. What actions can be taken by public authorities and others in the field to improve understanding, trust, and credibility?

The panels were not intended to be a consensus building forum, but rather an exploration of issues and solutions. Thus, the summary panel reports which follow represent a variety of preliminary views of individual panel members.

## **SUMMARIES FROM PANELS**

### **Panel 1. The Role of the Media**

The objective of this panel was to understand the role of the media in communicating biotechnology to the public. Many of the panelists said in a democratic society the public has both an obligation and a right to shape the developments of new technologies. The media is key to providing information on biotechnology to the public. Panelists went on to examine (1) the need for developing data bases to



provide quantitative evidence of the interrelationships between media coverage and public understanding and attitudes; (2) efforts needed to improve the scientists' understanding of the role of the media; (3) methods of working with the media; and (4) the relationship between communicators and various audiences.

Panel members recommended more comprehensive analyses of available data from opinion research surveys, thus providing a greater breakdown of target audiences and systematic analysis of media coverage. The panel urged further studies of public interest in science and development of means for assessing the credibility of scientists with members of the media and the public at large, and finding ways to improve the dialogue between scientists and the public. The panel also suggested making better use of communication specialists at scientific institutions.

## Panel 2. The Role of Scientists

The panel's objective was to recommend ways for scientists to enhance their ability to communicate more effectively with the public. The panel first reflected on the factors which might impede the inclination of scientists to communicate. In discussions, the need emerged to explore in more detail the interface between academia, industry, and society. Panel members expressed the view that there is a need to improve the education of scientists to include such issues as social responsibility, standards of professional ethics, and active participation in sharing knowledge with wider audiences.

Panel members formulated recommendations to scientists to assist their communication efforts, noting that: (1) preference should be given to scientific method rather than to detailed technical knowledge; (2) limits of present day knowledge should be described while avoiding the portrayal of science as a monolith; (3) rather than focusing on product innovation, relevance of molecular biology, integrated in the wider context of other discipline areas in the overall understanding of nature should be emphasized; (4) reductionism should be avoided; and (5) technical achievements should not be overstated.

Panel members made the following recommendations for action: (1) encourage scientific societies to include social issues on their agenda; (2) provide incentives for scientists to participate in interdisciplinary projects aimed at the science-society-environment interface; (3) provide incentives for scientists to obtain media training and encourage increased interaction with the public; and (4) encourage increased emphasis on professional responsibility to communicate as an intrinsic part of scientific education.

### Panel 3. The Role of the Public and Public Interest Groups

The objective of this panel was to seek recommendations on how to encourage public dialogue in the development of public policies affecting biotechnology. Panel members noted that many public interest groups (frequently described as groups of citizens) have been expressing concerns about the development of biotechnology over the last 20 years. Panel members further noted that Government entities need to ensure that citizens' groups representing a wide spectrum of opinion are provided opportunities to participate in government-sponsored fora.

Noting that the public discussion of biotechnology currently can be characterized by imperfect communication, panel members recommended that the US Government, the EC and national governments: (1) organize a task force to discuss a more integrated approach to communicating to the public research and technological developments; (2) fund assessment studies and basic research on issues identified by the task force; (3) involve citizen groups in discussing overall research priorities and objectives; (4) establish participatory mechanisms at the EC research and regulatory policy level and supplement existing US Federal and state mechanisms; (5) encourage private companies to confer with special advisory panels involving citizen groups; and (6) increase the availability of information to citizen groups and encourage scientist and citizen group interaction.

### Panel 4. The Role of Government Institutions

The objective of this panel was to explore the role of government institutions in fostering and improving the flow of information related to biotechnology. Panel members noted that public perception of biotechnology results from complex interplays of ethical, social, economic, and environmental consequences which are issues that will continue to be important and should be addressed. The government role in the information process should be that of a facilitator, a regulator, or as a conduit of information. The panel commented on appropriate activities for governments as they carry out each of these roles.

Trustworthiness and accountability were deemed by panel members to be normative requirements for government bodies. Governments in a clearinghouse role should also provide, disseminate, document, and monitor biotechnology information. Further, governments must insure that biotechnology policy is balanced, i.e., incorporating a wide spectrum of opinions. Communication between governmental bodies also needs to be improved, especially regarding regulatory issues. Panel members also recommended that governments develop methods for evaluating their communications efforts.

## Panel 5. The Role of Educators

The objective of this panel was to understand and strengthen the role of educators in communicating biotechnology to the public. Panel members noted that public participation in the decision-making process will affect development of biotechnology; thus, promoting public education on the technical, social, economic, and ethical issues surrounding biotechnology is a critical activity for public authorities on both sides of the Atlantic. However, important differences in target groups should be recognized and respected, and therefore programs initiated at the US - EC level will have to be tailored to specific needs.

Increased education should promote an interdisciplinary approach to teaching rather than lead to further specialization. New educational efforts must take notice of prior successes and failures and attempt to build on existing resources. The most effective efforts are likely to be incremental improvements rather than major changes in current policies.

The panel members identified a number of opportunities including teacher training, modern information systems, using various cultures as models for further learning, and using biotechnology education to teach how to interact in a modern, complex world.

Panel members also identified problem areas including the rapid pace of scientific research compared to the slower pace of societal learning, the lack of interdisciplinary approaches to integrating science and ethics, poor quality of teaching, fear of biotechnology by some students and teachers, and lack of basic research on methods of teaching biotechnology.

Panel members made two detailed recommendations. First, the US - EC should provide support for pilot projects encouraging interdisciplinary approaches to biotechnology education. These projects could focus on specific cases such as the human genome effort or food and biotechnology. The cases should be selected for their lasting societal impacts. They should be aimed at both secondary and higher education levels. Panel members described criteria for evaluating the proposed projects and ways and means for implementing them.

The second recommendation is that the US - EC Task Force should encourage government agencies and industry, in consultation with citizen groups, to develop and utilize their capabilities for communication with the public about the scientific, socio-economic and ethical dimensions of biotechnology. Target audiences should include local opinion leaders and local government officials.





## **Panel Reports**

Attached are reports the panels prepared and revised. The panels were not intended to be a consensus building forum, but rather an exploration of issues and solutions. Thus, the panel reports represent a variety of views of individual panel members. The views expressed in the reports are not those of the United States Government, the Commission of the European Communities, or BioResearch Ireland.



## PANEL 1: THE ROLE OF THE MEDIA

**OBJECTIVE: TO UNDERSTAND THE ROLE OF THE MEDIA IN COMMUNICATING BIOTECHNOLOGY TO THE PUBLIC.**

*Several different, and sometimes conflicting constituencies have an interest in the development of biotechnology. In the broader sense, though, this session focused on the proper relationship between the biotechnology community and the media.*

### I. INTRODUCTION

In democratic societies, the public has an obligation and a right to shape the developments of technology. The media is key to providing information on biotechnology to the public. The relationship between the media, the scientist and the biotechnology community in general will determine both the quality and quantity of information that is provided to the public.

### II. RECOMMENDATIONS

#### A. Develop a Data Base

- Conduct secondary analysis of available opinion research data (e.g., Miller-Illinois/Faits et l'opinions - 12 nation/1989-1990).
- Link these findings with those of Eurometer research.
- Establish a more detailed breakdown of target audiences in international public opinion research, employing common methodology.
- Conduct internationally comparable, systematic analysis of media coverage to identify technology presentation and give direction; compare with public opinion.
- Determine the level of public interest in science and its change over time.
- Assess credibility of scientists with the news media and the general public - identifying national differences in opinion.
- Encourage two-way communications and be aware that concerns expressed in questions reflect public attitudes.

B. Understanding the Media

- Increase the biotechnology community's awareness of the importance of cooperating with the media.
- Improve understanding of how the media functions on a daily basis, including the need to meet rigid deadlines.
- Sensitize scientists to how they are perceived by the media.
- Encourage scientists to enroll in media training exercises.
- Encourage institutions to explore internships and other cross-fertilization programs between educational institutions and the media.

C. Working with the Media

- Scientists and biotechnology institutions should develop an active approach to the media.
- Help create a variety of background materials, briefing documents, etc., useful to various media.
- Participate in on-going dialogue with select key journalists, including but by no means limited to science reporters.
- Give the full story, including unpalatable aspects.
- Be aware of opportunities to present information in a variety of non-obvious media segments.
- Encourage professional scientific organizations to discuss communications issues, and involve the media where appropriate.
- Give media calls a high priority.
- Encourage development of a Crisis Communications Management Plan (e.g., pre-identified media spokesperson). Anticipate negative issues and address them in advance.
- Track issues in the popular press.



## II. KEY AUDIENCES AND INFORMATION VEHICLES

Messages must be adapted to successfully communicate with the broad variety of audiences and appropriate vehicles:

### A. AUDIENCES:

- Agricultural groups
- News media
- Men's and women's organizations
- Scientists
- Citizen groups
- Teachers
- Youth
- Families

### B. VEHICLES:

- Traditional news media vehicles
- Other media vehicles
- Science festivals
- Science museums
- Science fairs
- Lectures
- School speakers
- Open houses
- Demonstration projects

## PANEL 2: THE ROLE OF SCIENTISTS AS COMMUNICATORS

**OBJECTIVE: TO ENHANCE THE ABILITY OF SCIENTISTS TO COMMUNICATE WITH THE PUBLIC**

*There are a number of factors which may affect the ability of those scientists to communicate with the public.*

### I. INTRODUCTION

Scientists communicate on different levels, depending on their audience. Communication may take place between:

Scientists - scientists,  
Scientists - funding bodies (private or public),  
Scientists - regulatory and public policy bodies, and  
Scientists - public at large.

Scientists today are most likely to be in situations that include academia, industry and the public. Of these three audiences, scientists show the least incentive to communicate with the public, a problem that may relate to the scientists' education and training. The panel believes that exceedingly narrow and specialized training may result in:

Difficulties incorporating one's own views in a broader context, including social, ethical, environmental and economic situations;

Limited ability to balance perspectives held by different social groups; and

Lack of interest in non-scientific points of view.

### II. OPPORTUNITIES FOR SELF IMPROVEMENT

- The panel believes scientists should enhance their understanding of social responsibilities and the standards of professional ethics.
- Scientists should be careful not to raise the public's hopes or fears without a sound scientific basis to support their judgement.
- Scientists need to be more active in sharing scientific knowledge, in particular with information of value to developing countries;

- Scientists need to be more aware of the need for new ways of teaching science at school, with particular attention to students who will not continue scientific studies.
- Scientists need to stress the essence and the peculiar features of scientific inquiry (e.g., the notion of defined uncertainty, scientific inquiry is not providing "truth," but testable interpretations and models and systematic doubt).

### **III. RECOMMENDATIONS ON HOW SCIENTISTS COMMUNICATE**

Scientists should be encouraged to consider the following elements in communicating with the public on biotechnology issues:

- Preference should be given to the essence of scientific method rather than to detailed technical knowledge;
- The limits of present-day knowledge should be described, with indication of the fields deserving more scientific investigations; science should not be presented as a monolithic body;
- Rather than stressing production innovation, an account should be given of how molecular biology contributes to overall understanding of nature, building on previous basic knowledge as well as empirical practices (e.g., traditional breeding);
- The relevance of molecular genetics should be integrated in the wider context of other disciplines, avoiding any kind of reductionism; and
- Scientific and technical achievements or prospective scenarios should not be overstated.

### **IV. RECOMMENDATIONS FOR ACTION**

Given the recognized need to have scientists as active participants in communication systems, it is recommended that governments:

- Encourage scientific societies and professional associations to include "communication with the public" in the agenda of their meetings programs on societal issues;
- Encourage scientists through grant awards and other incentives to participate as a partner in interdisciplinary activities which emphasize science-society-environment interface (i.e., a more holistic approach);

- Encourage institutions to place value on and encourage more scientists to obtain training and experience in media relations. Further, scientists must be encouraged to participate in communication of scientific knowledge to the public at large; and
- Encourage increased emphasis on professional responsibility in scientific education and training, as well as in communication. Encourage scientists to participate as members of multidisciplinary teams where ethical and social implications of biotechnology are discussed.

## **PANEL 3: THE ROLE OF THE PUBLIC AND PUBLIC INTEREST GROUPS**

**OBJECTIVE: TO ENCOURAGE PUBLIC DIALOGUE IN THE DEVELOPMENT OF PUBLIC POLICIES AFFECTING BIOTECHNOLOGY.**

*The public at large, and public interest groups in particular, are seeking more active participation in the decisionmaking process related to science policy.*

### **I. INTRODUCTION**

In the last twenty years many groups of citizens have been raising concerns about technological development in the field of biotechnology. Focusing on potential consequences, these groups mainly want to avoid possible negative effects at the social, environmental, cultural and ethical levels. Different citizens groups can represent factions anywhere along the entire spectrum of public opinion, and they attempt to present the views of those factions to decision makers, who, elected or appointed by elected officials, govern modern democracies. Decision makers must provide hearings for the citizens groups and individuals to assure that democratic processes are followed. They also aim to contribute to the improvement and implementation of regulatory policies.

### **II. IMPACT OF PUBLIC (CITIZEN) INTEREST GROUPS**

- The power and potential breadth of the technology has led to a diverse number of citizen groups seeking participation in the decisionmaking process.
- Since potential adverse effects of these technologies were identified and publicized early in the development of the technologies, citizens and citizens groups have participated in the debates about how quickly the technologies should be implemented. Some citizens and groups have argued for a precautionary, ex-ante approach.
- Some citizen groups ask for a more integrated approach to scientific and technological developments, considering not only economic but also broader social, environmental, and ethical impacts.



- Citizens groups often find themselves engaged in debate and public discussion with large, private, manufacturing and business concerns who want to speed up the application of the new technologies. Governments must assure that citizens groups and other interested parties are given opportunities to participate in these discussions.

### III. **RECOMMENDATIONS FOR ACTION**

The public discussion of biotechnology currently can be characterized by imperfect communication which has led to distrust. For example, unexamined arguments concerning national competitiveness, long-term economic importance, and the necessity for confidentiality frequently aggravate good communication. In light of these developments, recognizing the need for anticipatory decisionmaking in this field and considering the role that citizen groups play in this process, we recommend that the US Government, the EC, and the National Governments:

- Organize a task force to discuss alternative visions for research and technological development;
- Fund assessment studies on issues identified in the visions task force and fund the related basic research;
- Involve citizen groups in discussing overall research priorities and objectives;
- Establish participatory mechanisms at the EC research and regulatory policy levels and supplement existing US Federal mechanisms at the state level;
- Encourage private companies to experiment with special advisory panels involving citizens groups; and
- Increase the availability of information to citizen groups and encourage scientists to cooperate with these groups in this respect.

All of these recommendations should be implemented in a spirit which strives for balance and which avoids tokenism and cooptation. Furthermore, the commitment to these recommendations should be seen as an ongoing process with a willingness to alter the process as we learn from it.

## **PANEL 4: THE ROLE OF GOVERNMENT INSTITUTIONS**

**OBJECTIVE: TO EXPLORE THE ROLE OF GOVERNMENT INSTITUTIONS IN FOSTERING AND IMPROVING THE FLOW OF INFORMATION RELATED TO BIOTECHNOLOGY.**

*Governments must play a role as broker between different stakeholders in the biotechnology debate.*

### **I. INTRODUCTION**

Normative requirements for government include trustworthiness and accountability. Policies concerning communication and information must satisfy these requirements. We recognize that providing scientific or technical information plays an essential part, but only a part, in satisfying these concerns. So does the development, consideration, and discussion of other information -- ethical, social, economic, cultural and political -- play a role. Fulfilling these requisites of additional information requires a government role in the provision for and the dissemination of information, documentation and monitoring, and information development and research. Government support should be available for communication and information activities in order to improve interaction, the level of debate, and the abilities of stakeholders to participate.

### **II. OPPORTUNITIES**

- Communication strategy should give priority to developing useful, timely information that meets the needs of particular groups.
- Besides informative materials, governments should develop more interactive communication strategies with stakeholders and other interested parties.
- Where possible, government should increase the role of intermediary organizations in communicating on science and technology. Formal and informal educational organizations provide an important resource in this area.
- Governments have responsibilities to communicate with each other and to develop regular channels and systematic ways to exchange information on regulatory and other aspects of biotechnology.

- Government should develop and improve ways to anticipate problems, to elicit advice and diverse views, to understand and evaluate public opinions and those of stakeholder groups, and to understand and evaluate their own research, information, and regulatory actions.
- Changes in government regulatory policy should reflect current science and should be widely shared with the citizenry for public comment prior to finalization, i.e., governmental policymaking.

### III. **RECOMMENDATIONS**

- Governments must take care that efforts they undertake in development of policies for biotechnology are viewed as impartial and balanced, incorporating a wide spectrum of opinions and covering a wide range of subjects.
- Drawing on existing programs in the United States and Europe, the US-EC Task Force should develop a clearinghouse for identifying, evaluating, and disseminating materials and resources concerning communication and information activities.



## **PANEL 5: THE ROLE OF EDUCATORS**

**OBJECTIVE: TO UNDERSTAND AND STRENGTHEN THE ROLE OF EDUCATORS IN COMMUNICATING BIOTECHNOLOGY TO THE PUBLIC.**

*Educators play a crucial role in laying the foundation for a society that is expected to make important decisions related to science and high technology.*

### **I. INTRODUCTION**

Promoting education on the scientific, technical, social, economic, and ethical issues surrounding biotechnology is a critical undertaking for public authorities on both sides of the Atlantic. One reason is that important historical and cultural differences should be recognized and respected. Therefore, programs initiated at the US-EC level will need adaptation to suit local circumstances.

### **II. GENERAL RECOMMENDATIONS**

- Increased education in biotechnology should not support further specialization but an interdisciplinary approach to teaching important scientific and social issues.
- Instructional efforts should be sensitive to language barriers, which impede person-to-person contact among experienced educators, as well as the international dissemination of educational materials.
- New educational efforts should take notice of prior successes and failures and attempt to build as far as possible on existing resources, agencies, networks and databanks.
- The most effective efforts, therefore, will in all likelihood represent incremental improvements rather than major changes in current policy.

### **III. OPPORTUNITIES**

- Teachers who are well trained, motivated, and adequately supported and equipped can provide access to large numbers of students.
- Modern information retrieval and access systems allow the rapid sharing of programs, curricula, and other teaching methods wherever developed and tested.

- Different cultures provide a variety of models, experiences, and points of view.
- Biotechnology education provides an integrated opportunity for teaching people to participate more effectively in a complex, industrialized world.
- Biotechnology education enables students to comprehend scientific and industrial transformation.

#### IV. PROBLEMS

- The rapid pace of scientific research and application compared with the relatively slow pace of societal learning and response.
- Lack of interdisciplinary approaches integrating the natural and social sciences and ethics.
- Poor quality of teaching: 'unfriendly' science teaching, lack of assessment methods, curriculum overload, and emphasis on short-term success.
- "Fear" some students and teachers have of biotechnology.
- Lack of basic research on teaching, especially at a time of rapid change in scientific knowledge and applications.

#### V. SPECIFIC RECOMMENDATIONS

The US-EC should provide support for pilot projects encouraging interdisciplinary approaches to biotechnology education.

- These projects should focus on specific case(s) studies positive and exciting for the lay person such as the human genome project or food and biotechnology.
- The cases should be selected for lasting societal significance and permit long-term monitoring and follow-up. The project should be aimed at the broad area of education: elementary education, secondary education, adult education, etc.
- Criteria for evaluating proposed projects could include the following:
  - Involvement of natural scientists and scholars from other disciplines;
  - Exchange between universities, industry, and schools;
  - Focus on teacher-driven initiatives;
  - Coordinated action with media and decisionmaking community;

- Inclusion of assessment methods to evaluate performance of students and teachers; and
- Possibility for international comparison and adaptation.

## **VI. WAYS AND MEANS FOR IMPLEMENTING THE RECOMMENDATIONS**

- Draw on funding opportunities already presented by such sources as the National Science Foundation and the International League of Science Information in the United States, and Community Action Program in Education and Training for Technology in Europe. Partnerships with industry should also be investigated and used.
- Promote systematic exchange among educators through such organizations as European Initiative for Biotechnology Education in Europe and National Science Teachers Association and the National Association on Science, Technology and Society in the United States.
- Establish a clearinghouse and other systematic methods of disseminating information, including translation facilities and regular international workshops and meetings focusing on biotechnology education issues.
- Utilize other educational resources such as adult education systems (including the Extension Services in the United States and continuing education, museums, and distance learning programs in Europe).

The US-EC Task Force should encourage government agencies and industry, along with citizen groups, to develop and utilize their capabilities for communicating with the public about the scientific, socio-economic, and ethical dimensions of biotechnology. Target audiences should include local opinion leaders and local government officials.

**Copies of the report may be obtained from:**

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